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Maine Agricultural Experiment Station

BULLETIN No. 92. MAY, 1903.

FEEDING STUFF INSPECTION.

This Bulletin contains the analyses of samples of Feeding Stuffs received from correspondents and collected by the inspectors in the fall and early winter, 1902-3, the results of a feeding test with Biles Fourex and the full text of the new law.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION,
Orono, Maine.

MAINE

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ORONO, MAINE.

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FEEDING STUFF INSPECTION.

CHAS. D. WOODS, Director.

J. M. BARTLETT, chemist in charge of inspection analyses.

CHIEF REQUIREMENTS OF THE LAW.

The Legislature of 1897 enacted a law regulating the sale, inspection and chemical analyses of by-products sold as cattle foods. This was the first American legislation on this subject and experience showed the law to be defective in certain points. Because of this, the law was amended by the Legislature of 1903. The important changes are the doing away with the inspection tax and tag, and the 30 day notice before prosecution can be made, and the addition of a section against adulteration, and the maintenance of the inspection by a State appropriation.

The points of the law of most interest both to the dealer and consumer are concisely stated below.

Kinds of Feed Exempt Under the Law. The law applies to all feeding stuffs *except* hays and straws; whole seeds, meals, brans and middlings of wheat, rye, barley, oats, Indian corn, buckwheat and broom corn, sold separately; wheat bran and middlings mixed together and pure grains ground together.

The Brand. Each package of feeding stuff included within the law shall have affixed, conspicuously printed, the following statements: The number of net pounds contained in the package; the name or trade mark under which it is sold; the name and address of the manufacturer or importer; the percentage of crude protein, and crude fat.

The Adulteration of Feeding Stuffs. If any foreign substances are added to whole or ground grain or wheat offals the true mixture must be plainly marked upon the packages.

In the table which follows, there are given the results of the analyses of samples sent in by correspondents and collected by the Station in the fall and winter of 1902-3. A discussion of the results of the analyses and the full text of the law are given beyond the tables.

ANALYSES OF SAMPLES.

Name of Feed and Manufacturer or Shipper.	PROTEIN.		FAT.		Station number.
	Found—per cent.	Guaranteed—per cent.	Found—per cent.	Guaranteed—per cent.	
Prime Cotton Seed Meal American Cotton Oil Company	47.88	43.00	–	9.00	9565
	44.56	43.00	10.18	9.00	9683
	42.31	43.00	–	–	9722
	47.00	43.00	9.52	9.00	9706
	41.75	43.00	–	9.00	9728
	44.69	43.00	–	9.00	9731
	43.06	43.00	–	9.00	9743
	42.25	43 00	–	9.00	9751
	46.88	43.00	–	9.00	9772
	45.63	43.00	–	9.00	9782
	46.06	43.00	–	9.00	9807
	41.56	43.00	–	9.00	9835
	43.38	43.00	–	9.00	9841
	45.31	43.00	–	9.00	9851
	46.25	43.00	–	9.00	9891
	44.19	43.00	–	9.00	9948
	43.00	43.00	–	9.00	9941
Canary Brand Cotton Seed Meal R. W. Biggs & Co., Memphis	43.88	43.00	–	9.00	9569
	44.13	43.00	–	9.00	9607
	40.75	43.00	–	9.00	9616
	42.63	43.00	–	9.00	9619
	39.13	43.00	–	9.00	9671
	44.81	43.00	–	9.00	9678
	48.06	43.00	–	9.00	9684
	44.50	43.00	–	9.00	9690
	49.56	43.00	–	9.00	9696
	45.75	43.00	–	9.00	9700
	47.13	43.00	–	9.00	9726
	46.75	43.00	–	9.00	9730
	46.31	43.00	–	9.00	9740
	44.19	43.00	–	9.00	9771
	46.88	43.00	–	9.00	9789
	45.31	43.00	–	9.00	9813
	47.50	43.00	–	9.00	9820
	44.44	43.00	–	9.00	9830
	45.19	43.00	–	9.00	9837
	46.56	43.00	–	9.00	9846
	46.63	43.00	–	9.00	9848
	46.56	43.00	–	9.00	9863
	48.50	43.00	–	9.00	9873
	49.94	43.00	–	9.00	9876
	40.81	43.00	–	9.00	9878
	46.06	43.00	–	9.00	9881
	44.25	43.00	–	9.00	9917
	44.25	43.00	–	9.00	9924
	43.31	43.00	9.25	9.00	9928
Owl Brand Cotton Seed Meal F. W. Brodé & Co	43.44	43.00	–	9.00	9791
	45.13	43.00	9.13	9.00	9825
	44.13	43.00	–	9.00	9843
	43.25	43.00	–	9.00	9847
	42.19	43.00	–	9.00	9853
	44.56	43.00	–	9.00	9865
	44.69	43.00	–	9.00	9903

ANALYSES OF SAMPLES.

Name of Feed and Manufacturer or Shipper.	Protein.		Fat.		Station number.
	Found—per cent.	Guaranteed—per cent.	Found—per cent.	Guaranteed—per cent.	
Old Gold Brand Cotton Seed Meal T. H. Bunch, Little Rock, Ark	44.19	43.00	10.18	9.00	9685
	44.81	43.00	–	9.00	9702
	46.06	43.00	–	9.00	9845
	44.69	43.00	–	9.00	9855
	45.00	43.00	–	9.00	9870
	45.31	43.00	–	9.00	9882
	46.81	43.00	–	9.00	9892
	47.06	43.00	–	9.00	9897
	46.88	43.00	–	9.00	9899
	43.88	43.00	–	9.00	9914
	43.69	43.00	–	9.00	9920
	44.19	43.00	–	9.00	9670
	44.63	43.00	–	9.00	9943
	44.38	43.00	–	9.00	9945
Green Diamond Brand Cotton Seed Meal Chapin & Co., St. Louis	47.81	43.00	9.28	9.00	9681
	45.13	43.00	–	9.00	9689
	41.38	43.00	–	9.00	9699
	45.44	43.00	–	9.00	9710
	47.13	43.00	–	9.00	9747
	44.88	43.00	–	9.00	9748
	45.81	43.00	–	9.00	9755
	45.94	43.00	–	9.00	9778
	44.63	43.00	–	9.00	9800
	43.06	43.00	–	9.00	9808
	44.75	43.00	–	9.00	9826
	46.50	43.00	–	9.00	9827
	44.38	43.00	–	9.00	9857
	42.00	43.00	10.56	9.00	9606
	45.63	43.00	–	9.00	9913
	45.06	43.00	–	9.00	9929
Magnolia Brand Cotton Seed Meal C. M. Cox & Co., Boston	45.19	43.00	9.30	9.00	9753
	45.63	43.00	–	9.00	9888
	45.50	43.00	–	9.00	9889
Cotton Seed Meal Falladay's Oil Mill Co	47.44	43.00	–	9.00	9729
Southern Beauty Cotton Seed Meal J. F. Falls & Co., Memphis	43.56	43.00	–	9.00	9793
	44.13	43.00	9.31	9.00	9810
	44.44	43.00	–	9.00	9866
H. & H. Brand Cotton Seed Meal Haley and Hoskins, Memphis	44.31	43.00	10.10	9.00	9707
	44.56	43.00	–	9.00	9762
Cotton Seed Meal A. R. Hopkins & Co., Bangor	46.13	43.00	8.94	9.00	9581
Prime Cotton Seed Meal Independent Cotton Oil Co., Memphis	49.75	43.00	–	9.00	9602
	40.94	43.00	11.85	9.00	9754
	48.00	43.00	–	9.00	9761
	46.44	43.00	–	9.00	9806
Dixie Brand Cotton Seed Meal Humphreys, Goodwin & Co., Memphis	45.25	43.00	10.80	9.00	9680
	47.06	43.00	–	9.00	9775
	45.81	43.00	–	9.00	9792
	45.06	43.00	–	9.00	9804
	44.38	43.00	–	9.00	9570
	45.63	43.00	–	9.00	9643
	44.13	43.00	–	9.00	9675
	40.13	43.00	–	9.00	9932

ANALYSES OF SAMPLES.

Name of Feed and Manufacturer or Shipper.	PROTEIN.		FAT.		Station number.
	Found—per cent.	Guaranteed—per cent.	Found—per cent.	Guaranteed—per cent.	
Horseshoe Brand Cotton Seed Meal Hugh Pettit & Co.	44.06	43.00	–	9.00	9934
	44.44	43.00	–	9.00	9936
Cotton Seed Meal Planters Cotton Oil Co	43.00	41.00	–	–	9927
	45.31	43.00	–	–	9930
Star Brand Cotton Seed Meal Sledge & Wells, Memphis	41.19	43.00	10.08	9.00	9691
	45.75	43.00	–	9.00	9725
	43.25	43.00	–	9.00	9768
	41.25	43.00	–	9.00	9787
	40.81	43.00	–	9.00	9809
	39.94	43.00	–	9.00	9812
	46.06	43.00	11.45	9 00	9564
	41.50	43.00	–	9.00	9623
	41.56	43.00	–	9.00	9628
	42.75	43.00	–	9.00	9629
	46.31	43.00	–	9.00	9679
	43.94	43.00	–	9.00	9912
	44.38	43.00	–	9.00	9935
	44.50	43.00	–	9.00	9937
	44.56	43.00	–	9.00	9942
Cotton Seed Meal J. E. Soper & Co., Boston	46.13	43.00	8.47	9.00	9580
	44.06	43.00	12.01	9.00	9909
Cotton Seed Meal Sylacauga Oil Mill, Sylacauga, Ala	48.69	–	11.18	–	9563
	48.25	–	8.89	–	9601
Daisy Brand Cotton Seed Meal E. B. Williams & Co., Memphis	39.50	43.00	11.64	9.00	9714
	41.69	43.00	–	9.00	9877
Low Grade Cotton Seed Meal See discussion beyond tables	29.00	–	10.15	–	9604
	23.75	–	–	–	9634
	25.62	–	–	–	9637
	21.56	–	–	–	9672
	25.19	–	6.76	–	9763
	15.63	–	5.03	–	9893
	15.38	–	–	–	9901
	17.06	–	–	–	9919
Fine Ground Linseed Meal American Linseed Co	38.44	37.50	2.86	1.00	9682
	34.56	37.50	–	1.00	9769
	35.75	37.50	–	1.00	9779
	38.44	37.50	–	1.00	9854
	37.75	37.50	–	1.00	9856
	36.13	37.50	–	1.00	9895
	37.88	37.50	–	1.00	9911
Old Process Oil Meal American Linseed Co	32.38	32.00	6.96	5.00	9705
	32.81	32.00	–	5.00	9708
	33.81	32.00	–	5.00	9844
Cleveland Flax Meal American Linseed Co	39.31	37.50	2.20	1.00	9701
	40.13	37.50	–	1.00	9709
	38.38	37.50	2.09	1.00	9805
Linseed Meal Hunter Bros., St. Louis	34.06	34.00	8.69	6.50	9695
Old Process Linseed Meal Midland Linseed Oil Co	33.31	32.00	9.06	6.00	9692

ANALYSES OF SAMPLES.

Name of Feed and Manufacturer or Shipper.	PROTEIN.		FAT.		Station number.
	Found—per cent.	Guaranteed—per cent.	Found—per cent.	Guaranteed—per cent.	
Chicago Gluten Meal Glucose Sugar Refining Co., Chicago	34.13	39.00	3.60	2.00	9704
	35.69	38.00	-	2.00	9776
	34.06	38.00	3.68	2.00	9721
	37.13	38.00	3.71	3.00	9883
	32.56	30.00	4.23	3.00	9908
	39.06	-	6.65	-	9596
	35.50	38.00	-	3.00	9642
King Gluten Meal National Starch Co	34.56	35.50	2.88	3.70	9711
	33.88	35.50	-	3.70	9719
	33.75	35.50	2.95	3.70	9745
	33.31	35.50	-	3.70	9667
Cream Gluten Meal Chas. Pope Glucose Co	38.25	-	3.12	-	9595
Buffalo Gluten Feed Buffalo Gluten Co., Buffalo	27.88	26.33	3.42	3.00	9703
	27.56	26.33	-	3.00	9724
	26.31	26.33	-	3.00	9739
Buffalo Gluten Feed Glucose Sugar Refining Co., Chicago	26.50	28.00	3.39	3.00	9713
	24.19	28.00	-	3.00	9766
	24.31	28.00	-	3.00	9767
	26.56	28.00	-	3.00	9777
	27.56	28.00	-	3.00	9831
	27.25	28.00	-	3.00	9907
	28.50	28.00	2.94	3.00	9884
Queen Gluten Feed National Starch Co	23.06	23.60	2.74	2.20	9818
Globe Gluten Feed New York Glucose Co	26.31	27.00	3.99	3.12	9783
Pekin Gluten Feed Illinois Sugar Refining Co	26.81	28.00	4.06	3.00	9814
	25.38	28.00	-	3.00	9839
Biles Fourex J. W. Biles Co., Cincinnati	30.63	33.00	10.27	11.00	9752
	33.31	33.00	-	11.00	9785
	29.13	33.00	-	11.00	9801
	29.81	33.00	-	11.00	9802
	32.75	33.00	-	11.00	9815
	34.25	33.00	-	11.00	9819
	30.00	33.00	-	11.00	9828
	29.50	33.00	-	11.00	9850
	30.88	33.00	-	8.00	9886
	31.44	33.00	-	11.00	9915
	33.44	33.00	-	-	9631
	34.88	-	10.51	-	9636
	34.75	-	-	-	9645
	29.81	-	-	-	9660
	29.81	33.00	-	11.00	9666
	31.56	33.00	-	11.00	9668
	29.88	33.00	-	11.00	9674
	30.06	33.00	-	11.00	9676
	36.19	33.00	-	11.00	9727
	32.13	33.00	-	11.00	9900

ANALYSES OF SAMPLES.

Name of Feed and Manufacturer or Shipper.	Protein.		Fat.		Station number.
	Found—per cent.	Guaranteed—per cent.	Found—per cent.	Guaranteed—per cent.	
Victor Corn and Oat Feed American Cereal Co., Chicago	8.44	9.00	4.76	4.00	9688
	6.75	9.00	-	4.00	9716
	8.38	9.00	-	4.00	9732
	8.19	9.00	-	4.00	9742
	8.69	9.00	-	4.00	9757
	8.31	9.00	-	4.00	9758
	8.88	9.00	-	4.00	9774
	8.38	8.23	-	3.00	9817
	8.50	9.00	-	4.00	9823
	8.44	9.00	-	4.00	9838
	8.00	9.00	-	4.00	9887
	8.06	9.00	-	4.00	9905
Quaker Dairy Feed American Cereal Co., Chicago	13.38	12.00	4.03	2.00	9773
Quaker Oat Feed American Cereal Co., Chicago	14.00	14.00	3.97	3.50	9803
Stock Food—Oats, Corn and Barley American Cereal Co., Chicago	12.69	13.00	5.85	5.00	9821
	11.63	13.00	4.75	5.00	9852
	12.00	13.00	5.27	5.00	9849
Vim Oat Feed American Cereal Co., Chicago	7.81	7.50	-	2.75	9626
	8.31	7.50	3.65	2.75	9822
Blatchford's Calf Meal James W. Barwell	24.06	26.00	4.78	6.00	9868
Corn and Oat Feed Commercial Milling Co	8.19	10.81	4.63	6.02	9781
	8.94	10.81	-	6.02	9794
	8.56	10.81	-	6.02	9933
Durham Corn and Oat Feed Great Western Cereal Co., Chicago	9.88	7.94	6.00	8.92	9698
Concentrated Dairy Feed Great Western Cereal Co., Chicago	8.38	8.00	3.24	3.00	9861
Royal Oat Feed Great Western Cereal Co., Chicago	11.94	7.53	4.84	2.65	9890
Excelsior Corn and Oat Feed Great Western Cereal Co., Chicago	9.19	8.21	5.95	4.58	9906
De-Fi Corn and Oat Feed Edward Ellsworth Co., Buffalo	8.56	8.30	3.04	3.00	9859
I. X. L. Corn, Oats and Rye Feed Occidental Milling Co	10.31	10 02	5.46	4.67	9910
Kentucky Mixed Feed	13.44	12.00	4.78	3.00	9694
Mixed Feed Henry Littlefield & Co., Portland	12.63	11.56	3.69	3.15	9764
	14.69	11.56	-	3.15	9858
Ned Brand Corn and Oats	9.06	9.00	5.82	5.00	9756
	10.88	9.00	-	5.00	9842
Standard Sugar Feed E. S. Wentworth & Co., Memphis	9.56	12.00	1.81	2.25	9677

ANALYSES OF SAMPLES.

Name of Feed and Manufacturer or Shipper.	Protein.		Fat.		Station number.
	Found—per cent.	Guaranteed—per cent.	Found—per cent.	Guaranteed—per cent.	
Acme Mixed Feed Acme Milling Co	17.19 17.06 17.50 17.38	– – – –	– – – –	– – – –	9749 9834 9864 9938
Mixed Feed Ansted & Buck Co	16.94	–	–	–	9738
Mixed Feed Ballard, Louisville	18.13 17.13 17.81	– – –	– – –	– – –	9589 9639 9640
Blish Mixed Feed Blish Milling Co	17.94 17.38 16.88	– – –	– – –	– – –	9635 9733 9736
Erie Mixed Feed Chapin & Co	16.50	–	–	–	9832
Winter Wheat Mixed Feed Wm. A. Coombs	16.38 16.38	– –	– –	– –	9638 9641
Winter Wheat Bran Commercial Milling Co	16.88 17.13 18.00	– – –	– – –	– – –	9566 9583 9584
Royal Mixed Feed Doten Grain Co	17.50 18.56	– –	– –	– –	9590 9592
Bran Garalier Roller Mill Co	16.75	–	–	–	9591
Gee's Red Dog Flour Gee Grain Co., Minneapolis	14.19	–	–	–	9926
Winter Wheat Mixed Feed Huron Milling Co	16.50	–	–	-	9737
Boston Mixed Feed Imperial Milling Co	17.00 18.25	– –	– –	– –	9860 9650
Mixed Feed Mankota Milling Co	18.56	–	–	–	9582
Champion Mixed Feed Portland (Mich.) Milling Co	15.38	–	–	–	9833
Fancy Mixed Feed Portland (Mich.) Milling Co	17.38	–	–	–	9798
Pyramid Mixed Feed Royal Milling Co	17.69	–	–	–	9799
Ben Hur Brand Mixed Feed Royal Milling Co	16.75	–	–	–	9693
Pure Cereal Feed Valley City Milling Co	10.00	–	–	–	9750
Winter Wheat Cow Feed Valley City Milling Co	16.25 16.50 15.75	– – –	– – –	– – –	9560 9780 9829

ANALYSES OF SAMPLES.

Name of Feed and Manufacturer or Shipper.	Protein.		Fat.		Station number.
	Found—per cent.	Guaranteed—per cent.	Found—per cent.	Guaranteed—per cent.	
Mixed Feed Zenith Mills	17.31	-	-	-	9744
Bradley's Superior Meat Meal American Agricultural Chemical Co	34.56	40.00	9.59	9.00	9741
Bowker's Animal Meal Bowker Fertilizer Co., Boston	33.19	30.00	9.33	5.00	9715
	32.81	30.00	-	5.00	9836
	34.88	30.00	-	5.00	9872
Bowker's Beef Scraps Bowker Fertilizer Co., Boston	50.00	30.00	14.87	20.00	9786
	49.50	30.00	-	20.00	9788
Swift's Lowell Bone and Meat Meal Lowell Fertilizer Co.	50.13	50.00	10 01	10.00	9765
	50.88	50.00	11.48	8.00	9869

HIGH GRADE COTTONSEED MEAL.

Cottonseed meal is a by-product from the manufacture of cottonseed oil. After the cotton has been taken from the seed in the cotton gin, the remaining down or "linters" and the hard black seed coats or hulls are removed by machinery. What remains of the seed is cooked, and the oil expressed by high pressure. The resulting cottonseed cake is ground into the bright yellow cottonseed meal of commerce. Such a meal carries from 40 to 50 per cent or even more protein.

Sometimes the black hulls are ground with the cake and a dark colored meal of very inferior feeding value is the result. Not all dark colored meal is necessarily adulterated with hulls, but strictly first-class *fresh* cottonseed meal is always bright and yellow.

The analyses of 132 samples of 18 different brands of high grade and 8 samples of low grade cottonseed meal are here reported. The high grade meal was all guaranteed to carry 43 per cent protein and 9 per cent fat. The protein ranged from 39.50 to 49.75 per cent, with an average of above 45 per cent.

LOW GRADE COTTONSEED MEAL.

In the fall of 1902 the feed market was in an unusual condition, as feeding stuffs carrying high percentages of protein were very scarce. Gluten meal, which for years had been a standard concentrated feed for many farmers, was no longer to be obtained. The new crop cottonseed meal was not ready to go forward and the market was quite bare of old meal. As a result, handlers of cottonseed meal were forced to purchase outside of the regular channels. In November and December samples running as low as 21 per cent of protein were received from correspondents in different parts of the State. These samples were very dark in color, and rather poorly ground and the black particles of hull were very conspicuous. These goods were all traced back to the Oscar Holway Company of Auburn. Some of the goods were sold without any guarantee, others bore the tags of mills and shippers whose goods have, with these exceptions, ranked high. The matter was taken up with the shippers whose tags the goods bore, and they investigated and gave evidence satisfactory to us that the goods were not put out by them, but that the tags were attached by some one who had no right to do so. The explanations of the jobbing house were not satisfactory on this point. Two of the retailers state that when they objected to the dark color of the meal that the representative (traveling salesman) of the jobbers said that while it was dark in color it had been analyzed at the Experiment Station and found to be all right. As a matter of fact not a single sample of cottonseed meal was received at the Station from a wholesale dealer during September, October or November, 1902.

In February, 1903, a sample of cottonseed meal was sent to us from a Foxcroft dealer, which was found to carry only 15.63 per cent of protein and 5.03 per cent of fat. Ten days later a second sample was received from another dealer in the same town, which carried 15.38 per cent of protein, and a few days later still another sample was received from Foxcroft, which carried 17.06 per cent protein. These goods were all from the same car which was sold to the Foxcroft dealer by the Doten Grain Company. Later the Doten Grain Company sent to the Station 25 samples taken from as many sacks. These samples ran from 15 to 17 per cent of protein. A sample was sent to the Connecticut Experiment Station for expert examination under the microscope. Mr. Winton found no foreign adulteration except hulls. He believes it to be a very poor quality of Sea Island cottonseed meal ground with the hulls. The Doten Grain Company furnished evidence that they bought the meal for high grade goods.

All of the violations were reported to the Commissioner of Agriculture, as the law directs. The old law was defective, and the attorney general gave an opinion that a prosecution could not be maintained under its provisions. About 25 other samples of low grade cottonseed meal were sent to the Station by wholesale houses during the winter; these were for the most part samples submitted by snippers from out of the State to wholesalers, and by them sent to the Station because the Maine dealers suspected them to be of poor quality. In this way many cars of poor goods were undoubtedly kept out of the State. A few samples were sent from cars already in the State, of which the importers were suspicious. So far as we know, these goods were invariably disposed of as illustrated by the following letter:—"Referring to recent correspondence regarding car of low grade C. S. meal would say that we have disposed of this car and sent it out of the State. We would not have considered selling it in this State after we learned its analysis." While the old law, under the peculiar conditions of the fall and early winter of 1902-3, did not furnish full protection to the consumer, the amount of poor cottonseed meal sold in the State was a very small percentage of the total, and was in all probability much lessened because of the law.

LINSEED MEALS.

Linseed meal is made by grinding flax seed from which the oil has been more or less completely extracted. "Old Process" contains more fat and somewhat less protein than "New Process" linseed meal. Rather more linseed meal was found in the State in 1902-3 than usual and this is probably explained by the scarcity of both gluten meal and cottonseed. Fifteen samples of linseed meal are reported.

The American Linseed Company have placed the same guarantee on their linseed meal as on the Cleveland Flax meal. This latter is a linseed meal from which the fat has been more completely removed by extracting with naphtha. The naphtha is removed by treatment with steam, which leaves a coarse flaky product. As will be seen from the tables, the linseed meals were for the most part well up to their guarantees. The flax meal runs considerably higher in protein, however, than does the linseed meal of the same company.

GLUTEN MEALS AND FEEDS.

Gluten meals and gluten feeds are by-products left in the manufacture of starch and glucose from Indian corn. Corn consists largely of starch. The waste product in the manufacture of starch or sugar is relatively much richer in oil and protein than is corn. Most factories are removing part of the corn oil from the waste, so that nearly all the gluten meals carry much less oil than they did a few years ago. Gluten feeds differ from gluten meals in that they contain a good deal of the corn bran, and hence relatively less of protein and digestible carbohydrates, and more of the indigestible woody fiber.

Evidently the manufacturers are not finding it as profitable to make gluten meal as gluten feed, and this probably accounts for the decreased amounts found in the market. For the most part the gluten meals and feeds fall below the guarantee in protein and overrun somewhat in fat.

BILES FOUREX.

Biles Fourex is dried distillers grains—a new feed for Maine. The Norton-Chapman Company of Portland are the New England agents for these goods. The manufacturers guarantee the goods to carry 33 per cent protein and 11 per cent fat. Twenty samples sent to and collected by the Station have varied from 29 to 36 per cent of protein.

A FEEDING TEST WITH BILES FOUREX.

From a car shipped to Bangor one ton was sent to the Station, which was used in a feeding trial with milch cows. This lot carried 34.88 per cent protein.

When the Fourex was received the Station herd was being fed corn silage, mixed hay, and a grain mixture, composed of 200 pounds wheat bran, 200 pounds cotton seed meal, and 100 pounds linseed meal. This grain mixture carried about 30 per cent protein and cost about $25 per ton. A mixture of 300 pounds Fourex and 50 pounds of bran carries 30 per cent of protein and costs about $27 per ton. This mixture was fed in comparison with the oil meal mixture.

From the herd we selected 3 grade Holstein cows, 2 Jersey heifers and 1 Guernsey heifer, all in milk for about 3 months, and who, according to their records, were doing a moderate amount of work. These six animals were gradually changed from the oil meal mixture to the Fourex mixture, and after 22 days on this were gradually changed back to the oil meal ration.

The yields of milk on the oil meal ration for 11 days prior to the change to Fourex, and another 11 days yields after the return to the oil meal ration are compared in the table with 22 days in which the mixture was fed.

The table shows the milk yield of 6 cows for 22 days on oil meal and Fourex rations. The hay and silage fed was the same in all periods. Sufficient wheat bran was used with the oil meals and the Fourex to make a grain ration carrying 30 per cent total protein. The same *weight* of grain mixture was fed in all the periods.

Cows used in test.	Kind of Grain Mixture and Periods of Milk.			
	Oil Meal.			Fourex.
	1st period, 11 days.	3d period, 11 days.	Total, 22 days.	2d period, 22 days.
	lbs.	lbs.	lbs.	lbs.
Rothalie, Jersey	198.0	205.5	403.5	427.5
Addie 4, Jersey	209.1	203.1	412.2	428.0
Guernsey	222.0	209.8	431.8	440.3
Abbie B., Holstein	242.9	222.2	465.1	472.3
Roxy, Holstein	304.1	301.6	605.7	627.5
Fan, Holstein	275.2	285.7	560.9	594.2
Total milk in 22 days			2,879.2	2,989.8

It will be noted that the cows more than maintained their milk yield with the Fourex. The slight increase of 110 pounds with six cows in 22 days or less than a pound of milk per cow per day does not prove that Fourex is better food for milk production than the oil meals, as such small variations constantly arise from causes outside of the feed. For example, Rothalie and Fan gave nearly a pound a day more milk in the third than in the first period, and this on the same ration and when they were a month farther advanced in lactation.

Fourex has about the same composition as gluten meal; it is readily eaten by stock and is a safe food for milch cows when fed by itself or in combination with other grain feeds.

MEAT MEALS AND SCRAPS.

These were, with one exception, above the guaranteed percentages in protein and fat. Evidently many of the manufacturers place the guarantee sufficiently low so there will be no danger of their goods falling below the guarantees. In compounding rations it will be safer to depend upon the analyses here given than upon the guarantees.

BY-PRODUCTS OF THE OAT.

The various oat feeds, corn chops and corn and oat feeds are still used in the State to a large extent. Some of these are the straight refuse from the manufacture of oat meal, and others, like the H-O Company's goods, are mixtures of such refuse with other by-products of higher protein content. With a few exceptions they are up to their respective guarantees and no fault can be found with the manufacturers for their desire to sell these goods, as they are making no claims for nutrients which the goods do not contain. The intelligent buyer of feeding stuffs, who has his barns well filled with hay, corn fodder and silage, will have very little use for these feeds low in protein content.

WHEAT BRAN AND MIDDLINGS.—MIXED FEED.

The results of analyses of samples of wheat offals sent to the Station by correspondents and collected by the inspector are given in the table.

In the fall of 1899 the State was flooded with low grade, adulterated wheat brans and mixed feeds. Because of the publicity given to these fraudulent goods and the cooperation of the best of the large dealers, they have quite largely disappeared, or are sold under a proper guarantee.

There is so much profit in selling ground corn cobs and broom corn at the price of wheat bran that the consumer must ever be on the watch against this fraud. The safest thing is to buy only well known, reliable brands of this class of goods. The bulletin gives the names and analyses of many manufacturers of high class brans, and other wheat offals. If consumers will see to it that all of this class of feeds which they buy carries the name of the miller, there will be little likelihood of their being defrauded. In case of any doubt, mail a sample to the Station and an analysis will be made and the results reported promptly and without any charge.

CHAPTER 230 OF THE PUBLIC LAWS OF 1903.

An Act to regulate the Sale and Analysis of Concentrated Commercial Feeding Stuffs.

Section 1. Every package of any concentrated commercial feeding stuff, as defined in section three of this act, used for feeding farm live stock, sold, offered or exposed for sale in this state, shall have affixed thereunto, in a conspicuous place on the outside thereof, a plainly printed statement clearly and truly certifying the number of net pounds in the package, the name, brand or trade mark under which the article is sold, the name and address of the manufacturer or importer, and a chemical analysis stating the percentage of crude protein, allowing one per cent of nitrogen to equal six and one-fourth per cent of protein, and of crude fat it contains, both constituents to be determined by the methods adopted at the time by the association of official agricultural chemists.

If the feeding stuff is sold in bulk or put up in packages belonging to the purchaser, the agent or dealer shall, upon request of the purchaser, furnish him with the certified statement named in this section.

Section 2. The term concentrated commercial feeding stuff, as here used, shall not include hays and straws, the whole seeds nor the unmixed meals made directly from the entire grains of wheat, rye, barley, oats, Indian corn, buckwheat and broom corn. Neither shall it include wheat, rye and buckwheat brans or middlings, not mixed with other substances, but sold separately, as distinct articles of commerce, nor wheat bran and middlings mixed together, nor pure grains ground together.

Section 3. The term concentrated commercial feeding stuff, as here used, shall include linseed meals, cottonseed meals, cottonseed feeds, pea meals, cocoanut meals, gluten meals, gluten feeds, maize feeds, starch feeds, sugar feeds, dried brewers' grains, dried distillers' grains, malt sprouts, hominy feeds, cerealine feeds, rice meals, oat feeds, corn and oat chops, corn and oat feeds, corn bran, ground beef or fish scraps, condimental foods, poultry foods, stock foods, patented proprietary or trade marked stock and poultry foods, mixed feeds other than those composed solely of wheat bran and middlings mixed together, or pure grains ground together, and all other materials of similar nature not included in section two of this act.

Section 4. There shall be annually appropriated from the state treasury the sum of one thousand dollars in favor of the treasurer of the Maine Agricultural Experiment Station, the same, or such portion thereof as is found necessary, to be expended by said experiment station in the analysis of concentrated commercial feeding stuffs.

Section 5. So much of the appropriation granted under this act shall be paid by the state treasurer to the treasurer of said experiment station as the director of said station may show by his bills has been expended in performing the duties required by this act, such payment to be made quarterly upon the order of the governor and council, who are hereby directed to draw the order for such purpose. The director shall annually publish a statement of the receipts and expenditures under this act.

Section 6. Whoever shall sell, offer or expose for sale or for distribution in this state any concentrated commercial feeding stuff as defined in section three of this act, without complying with the requirements of section one of this act, or any feeding stuff which contains substantially a smaller percentage of constituents than are certified to be contained, shall, on conviction in a court of competent jurisdiction, be fined not more than one hundred dollars for the first offence, and not more than two hundred dollars for each subsequent offence.

Section 7. The director of the Maine Agricultural Experiment Station shall annually analyze, or cause to be analyzed, at least one sample of every concentrated commercial feeding stuff sold or offered for sale under the provisions of this act. Said director is hereby authorized and directed in person or by deputy to take a sample, not exceeding two pounds in weight, for said analysis, from any lot or package of concentrated commercial feeding stuff which may be in the possession of any manufacturer, importer, agent or dealer in this state; said sample should be placed in a suitable jar or bottle, tightly closed and a label placed thereon, stating the name or brand of the feeding stuff or material sampled, the name of the party from whose stock the sample was drawn and the time and place of drawing, and said label shall also be signed by the director or his deputy; provided, however, that when so requested said sample shall be taken in duplicate in the presence of the party or parties in interest or their representatives, in which case one of said duplicate samples shall be retained by the director and the other by the party whose stock was sampled. The sample or samples retained by the director shall be for comparison with the certified statement named in section one of this act. The result of the analysis of the sample or samples so procured, together with such additional information as circumstances advise, shall be published in reports or bulletins from time to time.

Section 8. Any person who shall adulterate any whole or ground grain with milling or manufactured offals, or with any foreign substance whatever, or any bran or middlings made from the several grains with any foreign substance whatever, for the purpose of sale, unless the true composition, mixture or adulteration thereof is plainly marked or indicated upon the packages containing the same, or in which it is offered for sale; or any person who sells or offers for sale any whole or ground grain, bran or middlings which have been so adulterated, unless the true composition, mixture or adulteration is plainly marked or indicated upon the package containing the same, or in which it is offered for sale, shall on conviction in a court of competent jurisdiction be fined not more than one hundred dollars for the first offence, and not more than two hundred dollars for each subsequent offence.

Section 9. Whenever the director of the Maine Agricultural Experiment Station becomes cognizant of the violation of any of the provisions of this act, he shall forthwith report such violation to the commissioner of agriculture, and said commissioner shall prosecute the party or parties thus reported. But there shall be no prosecution in relation to the quality of any concentrated commercial feeding stuff if the same shall be found in its constituent parts substantially equivalent to the certified statement named in section one of this act.

Section 10. Chapter three hundred thirty-four of the public laws of eighteen hundred ninety-seven, and all other acts and parts of acts inconsistent with this act are hereby repealed.

Section 11. This act shall take effect June one, nineteen hundred and three.

Approved March 28, 1903.

FREE ANALYSIS OF FEEDING STUFFS.

The Station officers take pains to obtain for analysis samples of all feeding stuffs coming under the law, but the co-operation of consumers is essential for the full and timely protection of their interests. Whenever anyone believes that this law is being evaded in any way, he is requested to notify the Director of the Station.

The Station will promptly analyze samples of feeding stuffs sold in Maine taken in accordance with the following directions and report the results without any charge to the interested parties. Dealers and consumers are urged to avail themselves of this offer.

DIRECTIONS FOR SAMPLING.

The sample should fairly represent the feeding stuff and is best obtained as follows:

Open one or more full and unbroken packages, and mix well together the contents of each for a foot in depth, take out three cupfuls from different parts of the mixed portions of each package, pour them one over another upon a paper, intermix thoroughly and fill a tin spice or baking powder box from the mixture. Upon paper plainly write (1) the name of the goods; (2) the name of the manufacturer; (3) the guaranteed percentages of protein and fat; (4) the name and address of the dealer; and (5) the name and address of the sender. Securely wrap the box and description of sample in paper and send by mail to the

Agricultural Experiment Station,
Orono, Maine.